

A network of optics students tackles N95 mask shortage

✍ C. Stark 📅 30-11-2020 🔗 <http://www.primapagina.sif.it/article/1206>

Doctors and nurses rely on respirator masks to protect them from COVID-19. These masks are designed to be discarded after every patient visit. The onslaught of the pandemic challenged supply chains and left healthcare workers in short supply of an essential tool: the N95 mask. This shortage impacted some of the world's wealthiest nations, but took an exorbitant toll on low-income countries. The one-time-use equipment became something worn for weeks or months at a time.

A solution was needed to safely extend the use of N95's quickly and inexpensively. Enter optics!

Thomas Baer, executive director of the Stanford Photonics Research Center (SPRC), USA, and 2009 President of The Optical Society (OSA), and Lambertus Hesselink, Stanford University, USA, designed a simple and economical way to decontaminate N95's using ultraviolet (UV) light. Their prototype is a high throughput UV-C decontamination chamber with the potential to expose over 5,000 N95's per day at the generally accepted fluence levels necessary for decontamination of coronaviruses.



OSA Student members in Brazil assembling their chamber in the lab. Photo courtesy of the OSA Foundation.

The construction of the chambers and their efficacy was published in OSA's *Applied Optics*, but Baer and Hesselink wanted to do more. They wanted a way to get actual chambers into the hands of healthcare workers in limited-resource settings. Baer and Hesselink turned to the OSA Foundation (OSAF) and our network of student chapters to build these "do-it-yourself" chambers and deliver them to hospitals in need.

There was an inspiring response from our optics students and their advisors. The OSAF has distributed 30 grants to chapters in countries such as Bangladesh, Brazil, Ethiopia, Ghana, Kenya, Mexico and Senegal. Grant requirements included sourcing components, budgeting, building, testing, and and - most importantly - partnering with a local hospital to install and operate the chambers. These students are gaining invaluable experience working directly with administrators and doctors, explaining the UV-C decontamination process and creating partnerships between the

hospitals and their chapters.

OSAF hopes others will be inspired by this effort and explore building their own chambers (all information is open-source) or reaching out to local healthcare providers to determine how best to partner and bring forth needed solutions. The optics and photonics community is well-positioned to leverage our science to make an immediate and long-term impact.



Chad Stark - Executive director of the OSA Foundation. The OSA Foundation (OSAF) serves as the philanthropic arm of The Optical Society (OSA). OSAF's vision is a thriving, robust, and collaborative optics and photonics community that inspires and empowers the next generation of leaders in the field. OSAF's mission is to inspire promising individuals to pursue careers in optics and photonics that lead to ongoing support and an enduring passion for the community.